AMENDMENTS TO THE CLAIMS

Please cancel claims 16, 18-24, 26-36, and 38-42 without prejudice.

Please amend the claims as follows:

1-15.   (Previously Cancelled).

16.   (Currently Cancelled).

17.   (Previously Cancelled).

18-24. (Currently Cancelled).

25.   (Previously Cancelled).

26-36. (Currently Cancelled).

37.   (Previously Cancelled).

38-42. (Currently Cancelled).

Please add the following new claims:

43.   (New) An apparatus comprising:

an analog photocell;

a sample and hold amplifier, a first input to the sample and hold amplifier being

an output from the analog photocell, a second input to the sample and hold

amplifier being a reference voltage, the sample and hold amplifier

producing an output that is a scaled version of the output of the analog

photocell, the scaling of the output being controlled by the reference

voltage; and

an analog to digital converter, the analog to digital converter converting the output

of the sample and hold amplifier to a digital value, the scaled version of

the output of the analog photocell being chosen to match a dynamic range

of the analog photocell with a dynamic range of the analog to digital

converter and being based, at least in part, on ambient light conditions.

44.   (New) The apparatus of claim 43, wherein the analog to digital converter

comprises:

a voltage controlled oscillator, an input of the voltage controller oscillator being a

output from the sample and hold amplifier; and

a counter, the counter being driven by an output of the voltage controlled

oscillator.

45.   (New) The apparatus of claim 44, further comprising a memory, the memory

storing an output of the counter.

46.   (New) The apparatus of claim 45, wherein the counter is reset after a certain

period of time.

47.   (New) The apparatus of claim 46, wherein the period of time is an integration

time for the analog photocell.

48.   (New) A method comprising:

inputting a charge of a analog photocell to a sample and hold amplifier;

inputting a reference voltage to the sample and hold amplifier;

modifying the scale of the analog photocell charge using the sample and hold

amplifier, the modification of the scale of the analog photocell charge

being controlled by the reference voltage; and

converting an output of the sample and hold amplifier to a digital value, the scale

of the analog photocell charge being modified by the sample and hold

amplifier to match a dynamic range of the analog photocell to a dynamic

range appropriate for converting the output of the sample and hold

amplifier to a digital value, and the scale of the analog photocell charge

being based, at least in part, on ambient light conditions.

49.   (New) The method of claim 48, wherein converting the output of the sample and

hold amplifier to a digital value comprises:

applying an output of the sample and hold amplifier to a voltage controlled

oscillator; and

driving a counter using the output of the voltage controlled oscillator.

50.   (New) The method of claim 49, wherein a count from the counter is proportional

to the intensity of light on the analog photocell during a previous integration time

period for the photocell.

51.   (New) The method of claim 50, further comprising storing a count from the

counter in a register.

52.   (New) The method of claim 51, further comprising resetting the counter after the

passage of the integration time period for the photocell.

53.   (New) An digital photocell comprising:

an analog photocell;

a sample and hold amplifier, a first input of the sample and hold amplifier being

an output of the analog photocell and a second input of the sample and

hold amplifier being a reference voltage;

a voltage controlled oscillator, an input to the voltage controlled oscillator being

an output of the sample and hold amplifier, the sample and hold amplifier

to scale the input to the voltage controlled oscillator, the scaling of the

input to the voltage controlled oscillator being controlled by the reference

voltage, the reference voltage to be set to match the scale of the input to a

dynamic range of the voltage controlled oscillator input to the voltage

controlled oscillator based at least in part on ambient light levels;

a counter, a speed at which the counter operates being controlled by an output of

the voltage controlled oscillator; and

a register, the register storing an output of the counter.

54.   (New) The digital photocell of claim 53, wherein the counter counts for a

specified time period and wherein the counter is reset at the end of the time

period.

55.   (New) The digital photocell of claim 54, wherein the time period is an integration

time period for the analog photocell.

56. (New) The digital photocell of claim 55, wherein the output stored in the register is a digital value that reflects an intensity of light incident on the analog during the previous integration time period.

57. (New) The digital photocell of claim 56, wherein the digital photocell is included in a pixel array.

58. (New) A method comprising:

applying an output of a analog photocell as a first input to a sample and hold amplifier;

applying a reference voltage as a second input to the sample and hold amplifier;

modifying the scale of the output of the analog photocell using the sample and hold amplifier, the modification of the scale of the output of the analog photocell being controlled by the reference voltage, the scale of the analog photocell charge being modified to match a dynamic range of the analog photocell to a dynamic range appropriate for converting the output of the sample and hold amplifier, the scale of the analog photocell charge being based at least in part on ambient light conditions; and

applying the output of the sample and hold amplifier to a voltage controlled oscillator;

driving a counter with the output of the voltage controlled oscillator;

saving a count from the counter; and

resetting the counter at the conclusion of a time period.

59.   (New) The method of claim 58, wherein the time period is an integration period of the analog photocell.

60.   (New) The method of claim 59, wherein the count from the counter is saved in a register.

61.   (New) The method of claim 60, wherein the count from the counter is proportional to intensity of light incident on the analog photocell.